ABSTRACT

Methods and apparatuses are provided for removing thermal energy from a nuclear reactor, which are fault tolerant. The apparatus includes at least one heat pipe configured to absorb thermal energy produced by the nuclear reactor. In addition, the apparatus includes a first compartment thermally coupled to the at least one heat pipe. The first compartment is configured to contain a first gas. Furthermore, the apparatus includes a second compartment thermally coupled to the at least one heat pipe. The second compartment is configured to contain a second gas and configured to isolate the second gas from the first gas.